

ILLUSTRATIONS OF UNFIGURED NEW SOUTH WALES

MARINE MOLLUSCS, PART 1.

By DONALD F. McMICHAEL* and JACQUES VOORWINDE†

Pls. 2, 3.

During the period 1918 to 1962, a great deal has been published concerning the nomenclature of the marine molluscs of New South Wales. The dates are significant in that they represent the time of publication of the two check-lists of New South Wales marine molluscs, those of Hedley, and Iredale and McMichael respectively. The latter incorporated the nomenclatural changes which had been made, principally by Iredale and Laseron, during the intervening years and was intended to provide a rapid source of reference to the extensive literature. In each case, the original reference to the introduction of a new nominal species was cited together with original figures, if any. In some cases, when no figure accompanied the introduction of a name, another reference to an illustration of that species was cited. However a few nominal species remained without reference to any figure, and since these are mostly Iredalean species, which were often described in only a few lines, or even words, and with only the vaguest of comparative data, the recognition of the taxa concerned is difficult.

When the Reference List (Iredale and McMichael, 1962) was published, it was intended to include all the nomenclatural changes which had been made to that time, if considered acceptable by the senior author. The work of some authors was ignored (e.g. Laursen, 1953) or treated with scepticism (e.g. Fleming, 1957). The present paper makes no attempt to overcome these deficiencies. It is concerned only with the fact that among the many nominal species listed for New South Wales, some have never been figured. One of us (J.V.) has listed the species which remain unfigured at this date and it is intended to provide illustrations in a series of papers of the type specimens, so that local workers may be helped with the identification of these forms, and revisers may have a better idea of the taxa represented by the names listed. Nomenclatural comments on the validity of the names, and some additional descriptions (by J.V.) and taxonomic comments on the species are given, but the latter should not be taken as the final word. In the following descriptions, the emphasis is laid on the clear-cut differences which can be recognised in the type material. However, when the larger number of specimens now available is studied, in many cases the differences tend to diminish, suggesting that specific differentiation may not be justified. There is obviously a great need for thorough revision of many of the groups involved, but it is left to others to undertake such work.

* [†] Curator of Molluscs, The Australian Museum, Sydney.

† Honorary Associate, The Australian Museum, Sydney.

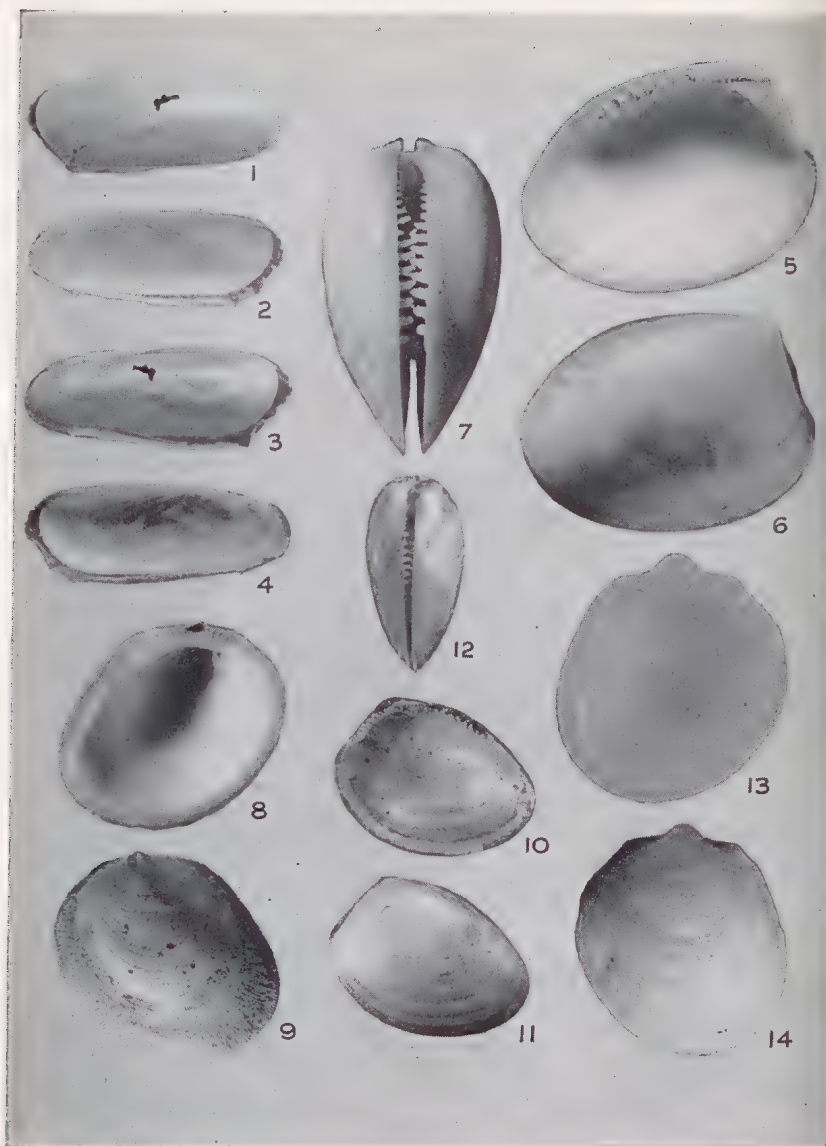


PLATE 2

Figs. 1-4. *Solemyarina velesiana* Iredale. Holotype, A.M. No. C. 7476.

Figs. 5-7. *Ennucula duritas* Iredale. Lectotype, A.M. No. C. 47082.

Figs. 8, 9. *Versipella soboles* Iredale. Holotype, A.M. No. C. 24366.

Figs. 10-12. *Ennucula astricta* Iredale. Lectotype, A.M. No. C. 47083.

Figs. 13, 14. *Aspalima solator* Iredale. Lectotype, A.M. No. C. 19794.

PHYLUM MOLLUSCA

CLASS BIVALVIA

Solemyarina velesiana Iredale

Pl. 2, figs. 1-4.

Solemyarina velesiana Iredale, 1931, *Rec. Aust. Mus.*, 18: 201. Reference List No. 1.

Remarks: This name was introduced with a brief description and comparison with the Queensland species, *S. terraereginae* Iredale, with which it does not appear to be conspecific. It is however not a nomen nudum as interpreted by us (see McMichael, 1964). The validity of the genus *Solemyarina* has been questioned by Macpherson and Gabriel (1962) as it was introduced because of uncertainty as to the type species of *Solemya* Lamarck. The latter has now been established as *S. australis*, and it thus seems likely that *Solemyarina* should be regarded as a subjective synonym of *Solemya*. Although Iredale did not designate a holotype in the original publication, there is only a single specimen from the type locality (Sydney) in the Australian Museum collection, which is therefore regarded as the holotype, No. C. 7476. This measures 9.5 mm. in length and 4 mm. in height.

Description: Shell small, equivalve, very inequilateral, colour off-white, periostracum nearly smooth, colourless and continuous beyond the margin and not interrupted by slits opposite the ribs as in *Solemya australis* (from South Australia) and *S. terraereginae*; both ends rounded; dorsal and ventral margins not parallel as in *australis* and *terraereginae*, but ventral margin expanded posteriorly; sculpture not ribbed but with very faint close set ill-defined striations over the whole surface of the shell; hinge as in *Solemya*; interior off-white.

Ennucula duritas Iredale

Pl. 2, figs. 5-7.

Ennucula duritas Iredale, 1931, *Rec. Aust. Mus.*, 18: 202. Reference List No. 3.

Remarks: This species was described with a brief diagnosis and comparison with the southern *Ennucula obliqua* (Lamarck); the type locality was "the Harbour" i.e. Sydney Harbour. A series of syntypes from Goat Island, Sydney Harbour, collected by John Brazier, No. C. 47082, are in the Australian Museum, with Iredale's manuscript label "*Ennucula duritas* Type" attached. The lectotype here selected and illustrated is the largest of this series, measuring 22 mm. in length and 9.5 mm. in height. Comparison of this type series with many *Ennucula* from off Sydney suggests that the taxon is not really distinct from *E. obliqua*; indeed all the New South Wales nominal species of *Ennucula* may represent variant populations of the one species. We have been unable to recognise any specimens which agree with the description of *Ennucula consobrina* (A. Adams and Angas) or with the figure given by Hedley (1913). Dell (1956) regards *Ennucula* as a valid genus but Macpherson and Gabriel (1962) following Thiele (1934) place it in the synonymy of *Leionucula* Quenstedt.

Description: Thin, small, elongate, more inequilateral and smaller than typical *obliqua*; umbos very blunt but well defined; periostracum light brown; anterior teeth 5, posterior teeth 22. The species is found in Sydney Harbour from the Heads to the mouth of the Lane Cove River.

Ennucula astricta Iredale

Pl. 2, figs. 10-12.

Ennucula astricta Iredale, 1931, *Rec. Aust. Mus.*, 18: 202. Reference List No. 5.

Remarks: There is some confusion over the exact form of introduction of this name. In the Reference List, Iredale and McMichael indicate that it was introduced as a new name for *Nucula simplex* A. Adams, non *N. simplex* Deshayes, and a figure of the type of *N. simplex* A. Adams, published by Hedley (1913) was cited. Reference to Iredale (1931) indicates that this is not correct. The name is introduced as a "sp. nov." not a "nom. nov." for "the local shell," specimens from Port Stephens recorded by Hedley as "*antipodum* Hanley" being mentioned. These specimens are in the Australian Museum, No. C. 47083, from the Old Collection, and are labelled "*astricta* Ired. Type" in Iredale's hand. Comparison with Hedley's figure of the type of *simplex* A. Adams shows that the Port Stephens shells do not agree exactly, consequently we illustrate the lectotype of *astricta* Iredale, which is the larger of the two syntypes. It measures 10.5 mm. maximum length, by 8 mm. maximum height.

Description: Thin, small; colour of periostracum light reddish-brown; umbos sharp, not extending beyond dorsal margin of shell; anterior teeth 14, posterior teeth 7.

Aspalima solator Iredale

Pl. 2, figs. 13, 14.

Aspalima solator Iredale, 1931, *Rec. Aust. Mus.*, 18: 204. Reference List No. 24.

Remarks: This species was described by a very brief comparative diagnosis with reference to *Aspalima erecta* (Hedley & Petterd, 1906). The latter is described in detail and well figured (*Rec. Aust. Mus.*, 6: 224, pl. 38, figs. 14, 15). A series of syntypes from 111 fm., 12½ miles east of Cape Byron, is in the Australian Museum, No. C. 19794 and the lectotype here figured is a single left valve, measuring approximately 2½ mm. in maximum height and length.

Description: General shape as in *Aspalima erecta*; nearly equilateral, slightly oblique, almost as wide as high; concentric and radiating sculpture distinct and equally strong; six teeth, three on either side of the small, ill-defined triangular subumbonal pit; margin indistinctly crenulated.

Versipella soboles Iredale

Pl. 2, figs. 8, 9.

Versipella soboles Iredale, 1931, *Rec. Aust. Mus.*, 18: 203. Reference List No. 26.

Remarks: This species was described by a few brief comparisons with *Limopsis tenisoni* Tenison Woods. A holotype was selected, from 300 fm., 27½ miles east of Sydney Heads, presented to the Australian Museum by W. F. Petterd, No. C. 24366. It measures 24 mm. maximum length, 23 mm. maximum height. It appears to be very close to *Senectidens dannevigii* Iredale and any generic distinction between the two is quite unrecognisable by us. Macpherson and Gabriel (1962) consider *Versipella* to be a synonym of *Limopsis* Sasso.

Description: Shell very flat; shape identical with that of *S. dannevigii*; sculpture of irregularly spaced, flat concentric growth ridges, the umbonal area nearly smooth; radial sculpture of closely spaced grooves, more pronounced between the growth ridges than on them; colour pale yellow; periostracum tenacious, covered with thick, long bristles; ligamental area long, narrow; subumbonal pit small, well-defined; hinge plate broad; anterior teeth 9, posterior teeth 10, regularly radiating, the slope changing gradually from horizontal to vertical and back to horizontal; interior glossy white; margin smooth; posterior muscle scar less elongate and more dorsal than that of *dannevigii*.

Senectidens dannevigii Iredale

Pl. 3, figs. 1, 2.

Senectidens dannevigii Iredale, 1931, *Rec. Aust. Mus.*, 18: 204. Reference List No. 27.

Remarks: Iredale described this shell in a few lines by comparison with *Versipella soboles*. He did not mention a type specimen but in the Australian Museum collection a single live-taken shell from 80 fm. off Gabo Island, Victoria, collected F.I.S. "Endeavour," No. E. 4832, is labelled "*Senectidens dannevigii* Ire. Type" in Iredale's hand and is here selected as lectotype. It measures 27 mm. maximum length, 26 mm. maximum height.

Description: Shell flat, inequilateral; sculpture of close-set, well defined concentric growth ridges, crossed by very fine, close-set radiating grooves, not extending into the spaces between the growth ridges; umbos small, sharp, and extending beyond the dorsal margin; colour (in lectotype) pale yellow; ligamental area large, triangular; subumbonal pit small, ill-defined, larger than in *V. soboles*; hinge broad, anterior teeth 9, posterior teeth 13; slope of first three anterior teeth almost horizontal, the remainder suddenly steeply sloping to vertical; internal margin smooth; interior dull white; anterior adductor scar immediately under the outer anterior corner of the hinge; posterior muscle scars half way between the posterior of the hinge and the ventral margin.

Glycilima paradoxa Iredale

Pl. 3, figs. 3-5

Glycilima paradoxa Iredale, 1931, *Rec. Aust. Mus.*, 18: 204. Reference List No. 28.

Remarks: This species was described in some detail, and one of the differentiating characters was its lack of cancellate sculpture. However, the large valve here selected as lectotype shows faint radial rib sculpture crossing the concentric sculpture. The validity of the genus *Glycilima* is, as a consequence, doubtful. The syntypes consist of many dissociated valves from 100 fm., off Wollongong, New South Wales, presented C. Hedley, Australian Museum No. C. 62324. We have selected as lectotype the largest right valve (fig. 3) but as it is not in very good condition, we also figure a smaller, paralectotype left valve (figs. 4, 5).

Description: Shell almost equilateral; teeth 4 to 6 on each side (depending on maturity); surface with widely spaced growth ridges following the margin of the shell, crossed by faint, irregularly spaced radial ribs.

Abarbatia separata (Iredale)

(Not figured).

Barbatia (nistachia) separata Iredale, 1925, *Rec. Aust. Mus.*, 14: 249. Reference List No. 37.

Remarks: Iredale described this taxon as a deep-water subspecies of the sub-littoral *pistachia* Lamarck, giving a few differentiating characters. Unfortunately no specimens can be found in the Australian Museum collection which are recognisable as Iredale's syntypes, so that we can add nothing at present regarding this form.

Veletuceta thackwayi Iredale

Pl. 3, figs. 6, 7.

Veletuceta thackwayi Iredale, 1931, *Rec. Aust. Mus.*, 18: 203. Reference List No. 47.

Remarks: Iredale described this species and the next in a confusing set of comparisons with the nominal species *crebriliratus* Sowerby and *tenuicostatus* Reeve. Few distinguishing characters were given and comparison of series suggests to us that all the populations referred to may be conspecific. A series of three syntype right valves of *V. thackwayi*, from Port Stephens, New South Wales, presented by A. E. J. Thackway is in the Australian Museum, No. C. 62348 and we have selected as lectotype the largest valve which measures 22 mm. in length and 20 mm. in height. Macpherson and Gabriel (1962) do not accept *Veletuceta* as a genus distinct from *Glycymeris*, following Thiele (1934) and other workers; however Nicol (1956) indicates that *Veletuceta* may be an acceptable taxon.

Description: Shell rounded, slightly longer than high, posterior slightly angulated; shell light yellow-brown with a conspicuous lighter flame-like patch descending from the umbo, and with brown zig-zag lines (as in *V. flammeea* Reeve); with a fine tenacious periostracum; sculpture of numerous, flatly-rounded radiating ribs (slightly less in number, broader and flatter than in *fossa* Iredale) overridden by very close-set, radiating striae which are more conspicuous on than between the ribs; growth lines faintly indicated by slightly lighter coloured concentric bands rather than ridges; concentric close set striae, more conspicuous on than between the radiating ribs, in combination with the radiating striae give the surface a finely granulated appearance; hinge plate narrow; teeth weak, 10 on either side; muscle scars elongate, adjacent to hinge plate; some specimens feature a dark brown coloration on, and descending from the anterior muscle scar; margin crenulated, but not as strongly as in *fossa* Iredale.

Veletuceta fossa Iredale

Pl. 3, figs. 8, 9.

Veletuceta fossa Iredale, 1931, *Rec. Aust. Mus.*, 18: 203. Reference List No. 48.

Remarks: The syntypes of this taxon include a large series of live taken specimens from 5 to 15 fm., off Gabo Island, Victoria, collected by Roy Bell, Australian Museum No. C. 62356. We have chosen as lectotype one of the largest measuring 20.5 mm. maximum length and 18.5 mm. maximum height.

Description: Shell almost round in outline; white with dense, fine, tenacious, silky light-brown periostracum; sculpture of numerous flatly-rounded radiating ribs, overridden by very fine close-set radiating striae on and between the ribs, crossed by widely spaced, ill-defined concentric growth ridges and extremely fine close-set concentric striae which are visible between the radiating striae; hinge plate deep; 10 teeth on each side; both muscle scars rounded, high up, adjacent to hinge; a well-defined red brown patch under the umbonal area on the dull white interior; margin strongly crenulated; ligamental area long, narrow.

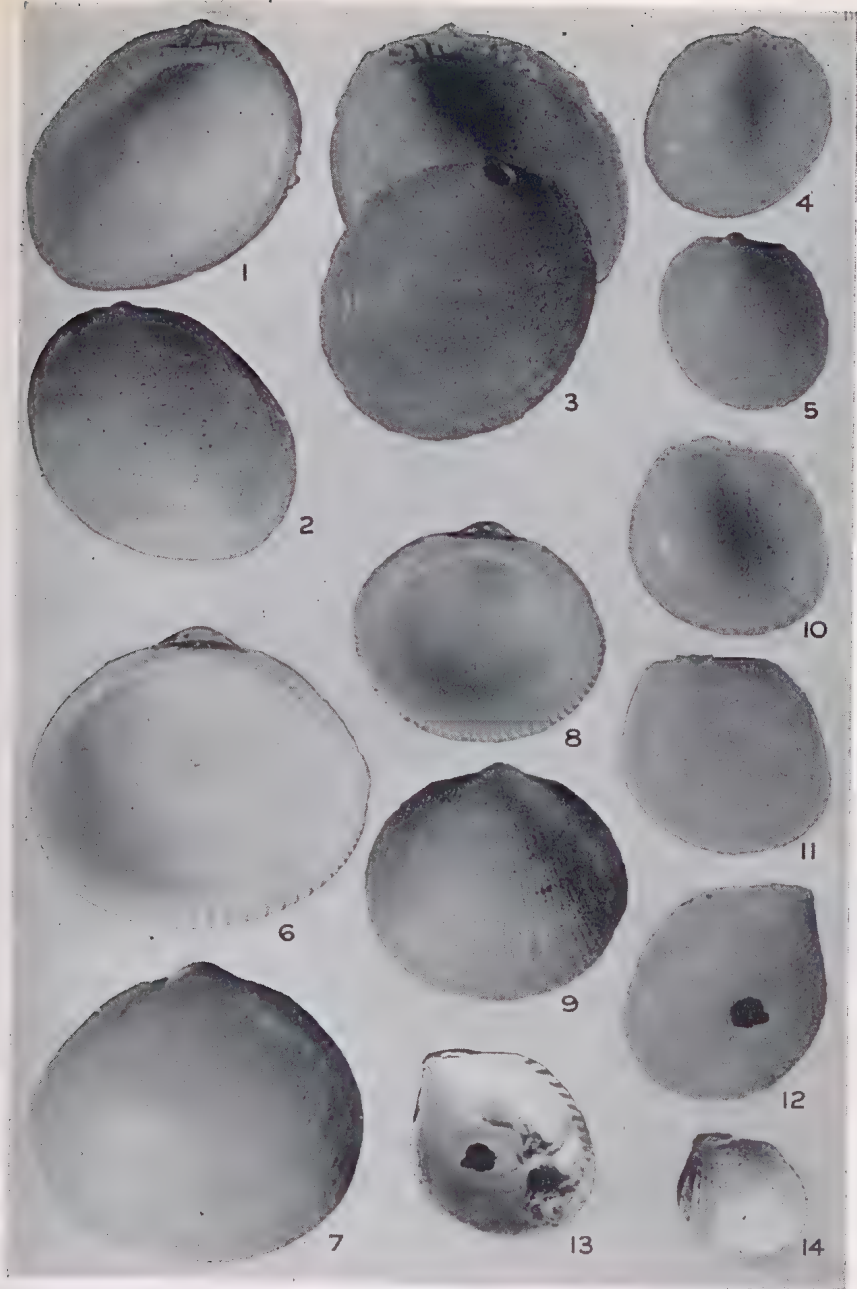


PLATE 3

- Figs. 1, 2. *Senectidens dannevigii* Iredale. Lectotype, A.M. No. E. 4832.
 Fig. 3. *Glycylima paradoxa* Iredale. Lectotype, A.M. No. C. 62324.
 Figs. 4, 5. *Glycylima paradoxa* Iredale. Paralectotype, A.M. No. C. 62324.
 Figs. 6, 7. *Veletuceta thackwayi* Iredale. Lectotype, A.M. No. C. 62348.
 Figs. 8, 9. *Veletuceta fossa* Iredale. Lectotype, A.M. No. C. 62356.
 Fig. 10. *Cosa pharetra* Iredale. Paralectotype, A.M. No. C. 18142.
 Fig. 11. *Cosa pharetra* Iredale. Lectotype, A.M. No. C. 18142.
 Figs. 12, 13. *Cosa sagana* Iredale. Lectotype, A.M. No. C. 18141.
 Fig. 14. *Cosa sagana* Iredale. Paralectotype, A.M. No. C. 18141.

Cosa sagana Iredale

Pl. 3, figs. 12-14.

Cosa sagana Iredale, 1931, *Rec. Aust. Mus.*, 18: 204. Reference List No. 59.

Remarks: This species is briefly, but adequately described, so that additional descriptive matter is unnecessary. A syntype series in the Australian Museum, No. C. 18141 consists of numerous dissociated valves, from 100 fm., off Wollongong, New South Wales, presented by C. Hedley. A large, slightly damaged right valve is selected as lectotype and figured (figs. 12, 13); it measures approximately 2.5 mm. in maximum length and height. A smaller, left paralectotype valve is also figured, (fig. 14). Laseron (1953) briefly reviewed the status of the genus *Cosa* in New South Wales. Thiele (1934) regarded *Cosa* as a section of *Philobrya*.

Cosa pharetra Iredale

Pl. 3, figs. 10, 11.

Cosa pharetra Iredale, 1931, *Rec. Aust. Mus.*, 18: 204. Reference List No. 61.

Remarks: This species also was adequately described and no additional comments are necessary. Both *Cosa* species seem fairly distinctive from the other named species on the New South Wales List, but revision of the group is desirable. The syntype series consists of numerous isolated valves from 100 fm. off Wollongong, New South Wales, presented by C. Hedley, Australian Museum, No. C. 18142. A left valve (fig. 11) is selected as lectotype; it measures approximately 2½ mm. in maximum height and maximum length. A right paralectotype valve is also illustrated (fig. 10).

ACKNOWLEDGEMENTS

The assistance of Messrs. A. Healy and F. J. Beeman in the preparation of the plates is gratefully acknowledged. The Sydney Branch of the Malacological Society of Australia has met the cost of preparation of illustrations and blocks, for which we are grateful.

REFERENCES

- DELL, R. K., 1956. The Archibenthal Mollusca of New Zealand. *Bull. Dom. Mus. N.Z.*, 18: 1-235.
- FLEMING, C. A., 1957. The genus *Pecten* in New Zealand. *Palaeont. Bull. N.Z.*, 26: 1-69.
- HEDLEY, C., 1913. Studies on Australian Mollusca. Part 11. *Proc. Linn. Soc. N.S.W.*, 38: 258-339.
- HEDLEY, C., 1918. A Check-List of the Marine Fauna of New South Wales. Part 1. Mollusca. *J. Roy. Soc. N.S.W.*, 51, Suppl., pp. M1-M120.
- IREDALE, T. and McMICHAEL, D. F., 1962. A Reference List of the Marine Mollusca of New South Wales. *Mem. Aust. Mus.*, 11: 1-109.
- LASERON, C. F., 1953. Minute bivalves from New South Wales. *Rec. Aust. Mus.*, 23: 33-53.
- LAURSEN, D., 1953. The genus *Ianthina*. *Dana Rep.*, 38.
- McMICHAEL, D. F., 1964. The genus *Amimopina* Iredale, 1933. *Nautilus*, 78: 52-54.
- MACPHERSON, J. H., and GABRIEL, C. J., 1962. *Marine Molluscs of Victoria*. University of Melbourne and National Museum, Melbourne.
- NICOL, D., 1956. Distribution of living glycymerids with a new species from Bermuda. *Nautilus*, 70: 48-53.
- THIELE, J., 1934. *Handbuch der Systematischen Weichtierkunde*. (Part 3). Gustav Fischer, Jena.